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THE REDISCOVERY AFTER 83 YEARS OF THE DIBBLER *ANTECHINUS APICALIS* (MARSUPIALIA, DASYURIDAE)

By M. K. MORCOMBE, Box 54, Armadale.

INTRODUCTION

The carnivorous marsupial *Antechinus apicalis* (Grey, 1842) has not been collected for at least 83 years and consequently has been considered possibly extinct (Glauert, 1933). Quite apart from its rarity it is also a species of scientific interest because of disagreement about its classification: Tate (1947) erected a monotypic genus, *Parantechinus*, for this species, based on the extreme reduction of the posterior premolars which are single-rooted vestiges. Ride (1964) in describing a new dasyurid species *A. rosamondae*, with even more extreme premolar reduction, has commented on the taxonomy of *Antechinus*, *Parantechinus* and *Pseudantechinus* and suggests a return to the wider concept of *Antechinus* for all species of this group.

I obtained two specimens of *Antechinus apicalis* near Cheyne Beach, 30 miles east of Albany, Western Australia, by trapping on the flowers of *Banksia attenuata*. The first, a female, was caught on the night of January 26, 1967, and this specimen, with a male caught two nights later, has been kept alive to the time of writing (March 30) for observations on behaviour.

REDISCOVERY

Between January 12 and 31, 1967 trapping was carried out in the Albany district and eastwards with the primary objective of collecting a live specimen of the Honey Possum, *Tarsipes*, which is well known to be associated with *Banksia* and other large wild-flowers.

Traps were made to fit over these flowers. Several versions of trap were made, and the most satisfactory seems to be a cylinder of flywire stiffened with a medium thickness fencing wire. One end is closed permanently, the other by a circular door, which is hinged. A mousetrap wired to the outside of the cylinder pulls this door shut, the trip-wire passing from this mousetrap through the centre of the cylinder and being tied to the opposite side. The construction is simple, the cost very low, and a dozen can be made in a few days.

The setting of these traps on flowers is not as conveniently done as the setting of conventional box traps on the ground: a flower with straight, upright stem is needed. The cylinder, over the flower, must be wired to the stem below the flower, and usually braced with wires to nearby branches. Leaves must be removed where they would interfere with the swing of the door. The tight fit of the door around the stem is usually a problem. The door must have a notch to fit the branch, and though the cages may be made to a pattern, banksia branches are not, and

it is usually necessary to bend and shape the cage and its door a little to fit each branch. The tripwire passes over the surface to the flower.

Until January 22 these traps, up to ten in number, were set on flowers of *Banksia attenuata* and *Banksia grandis* scattered through a dense thicket of *Banksia coccinea* near Oyster Harbour, Albany. The only mammal collected here was one specimen of *Rattus fuscipes*, an attractive small native species, which was taken in a trap set over a flower approximately twelve feet above ground.

On January 23 all traps were shifted 28 miles east of Albany to the Upper Kalgan district where they were set for one night without result.

On January 24 six traps were set for one night on flowers of stunted *B. attenuata* in low heath vegetation along the road between the Waychinicup River and Cheyne Beach, 30 miles east of Albany, but without result. However, two small mammals were seen here: one in the talons of a low-flying Brown Hawk, *Falco berigora*, and the other running through low vegetation—the impression gained was of rat rather than marsupial.

All traps were shifted, next, to a site between Cheyne Beach and Lookout Point on January 25 between 50 and 100 yards from the fishing settlement, and again set on *B. attenuata* flowers. On the morning of the 26th the sole occupant of the traps was a *Rattus fuscipes*, caught on a flower five feet above ground. However on the morning of January 27 a trap set perhaps two feet above ground held a small marsupial, a female of *Antechinus apicalis*.

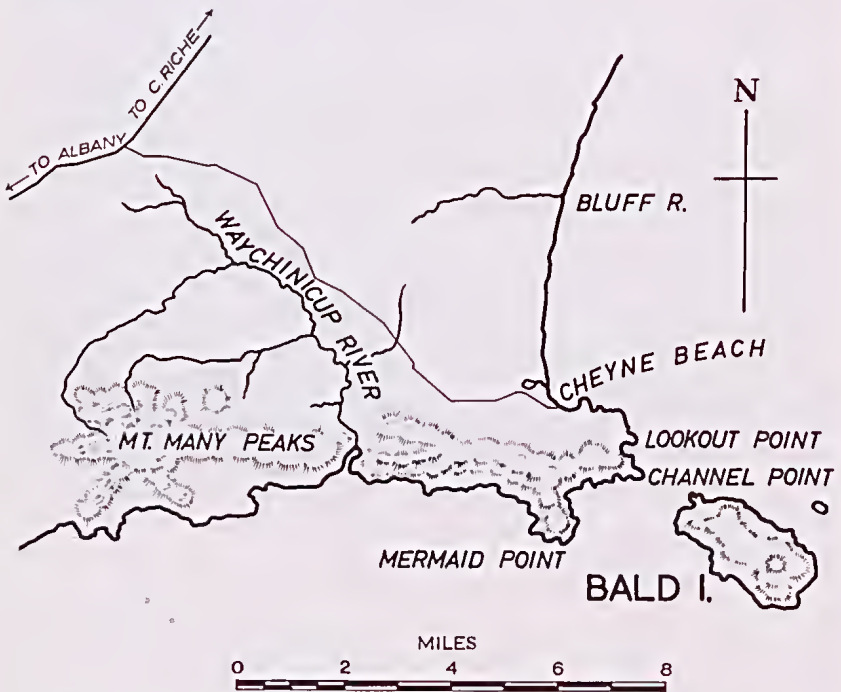


Fig. 1.—Map of the Mt. Many Peaks-Cheyne Beach area.

—After G. M. Storr.

The vegetation here consisted of stunted *Banksia attenuata* to a height of about six feet; dense clumps and shrubby bushes of *B. baxteri* to eight or ten feet; extensive clumps of the Peppermint, *Agonis*, and dense undergrowth of low, tangled scrub to perhaps two feet.

On the morning of January 29 a trap on a flower four feet above ground held a second, larger *Antechinus apicalis*, a male. A nearby trap contained another specimen of *Rattus fuscipes*. The trapping was then discontinued.

PREVIOUS BIOLOGICAL STUDY OF THE CHEYNE BEACH AREA

The area around Cheyne Beach and Mt. Many Peaks is little known zoologically. In 1959 a party from the Zoology Department of the University of Western Australia spent a week exploring the countryside around Cheyne Beach prior to crossing to nearby Bald Island to collect live Quokkas and to study the flora and fauna (Storr, 1965). Mammals and birds of the areas east, west and inland of Cheyne Beach were recorded. Among the mammals, *Rattus fuscipes* was plentiful in the sandplain near Cheyne Beach and three were caught in box traps placed on the ground at the entrances of burrows (G. M. Storr *pers. comm.*). *Antechinus apicalis* was not collected, nor were bones of this species among others collected in a cave near Waychinicup estuary.

PREVIOUS RECORDS OF LOCALITY

(1) From museum specimens.

The British Museum (Natural History) has several specimens (see Thomas, 1888: 278). All but one of these were registered in the 1840's, and almost certainly came from Gould's collector, Gilbert; these two specimens, which may be from the same individual (a skin 44.9.30.6 and a skull 48.1.27.2) are from a precise locality i.e. Victoria Plains,* Western Australia. The other (No. S6.9.1.1) was registered in 1886 and was purchased from Gerrard who gave Albany as the locality (Ride, *pers. comm.*)

City of Liverpool Museum. A specimen No. 272a, J. Gould Collection; original collector's label still attached, "July 3, 1843 Vicinity of Moore R. Western Australia."

Rijksmuseum v. nat. Hist. Leyden: two specimens, one purchased in 1844, with Moore's River as locality; the other with no data or precise locality (Jentink, 1883).

The Australian Museum, Sydney has one specimen (No. 601) collected in ?1869 at the Salt River, W.A. (i.e. the Pallinup R. about 60 m. east of Albany). This is probably the specimen collected by Masters in 1869 (see list in Glauert, 1950: 126).

The National Museum, Victoria has no specimens with precise locality, but there are 22 in all from Western Australia probably taken between 1875 and 1884.

The Western Australian Museum has no specimen of *Antechinus apicalis*, the specimens collected at Albany by Shortridge in 1904 (Shortridge, 1910) being misidentified specimens of *A. flavipes* (Glauert, 1954).

The Queensland Museum has two juvenile specimens recorded by Thomas (1888: 278) which De Vis says are from Rockhampton,

* Victoria Plains is the name used by Gilbert for the grassy plains approximately 40 miles north of Toodyay and between Toodyay and Wongan Hills in the area called "Victoria" in Arrowsmith's map in Grey, 1841 (Ride, *pers. comm.*)

Queensland. Ride (*pers. comm.*) agrees with Thomas's (p. 278 footnote) that these cannot be separated from *A. apicalis* on their morphology; although Ride has some reservations because he has not compared them with other juveniles of *A. apicalis*.

(2) From literature.

Gilbert's notebook on the marsupials (Whittell, 1954) includes entries in his own handwriting, on species he had collected, and there is an entry (giving native names) for three localities for this species:

"Antechinus

Marn-dern, Aborigines of Moore's River

Wy-a-lung, Aborigines of Perth

*Dib-bler, Aborigines of King George's Sound"

and "Hab: Western Australia. No. 2 of my collection."

His only notebook specimen mentioned with locality, was from Albany: "While at the Sound I obtained a female with seven young attached in the same manner as observed in *A. leucogaster*."

Gilbert's letter to Gould, March 27, 1843 (Gilbert in Wagstaffe and Rutherford, 1955: 17) mentions another specimen:

"No. 2 Phascogale? Mara-dera Aborigines of Moore's River.

The only part of the Colony I have observed this animal and the only specimen I received procured from Moore's River in the interior." (The name Moore's River was used by Gilbert for the part of the Moore River in the vicinity of the present New Noreia. Ride, *pers. comm.*)

Gould also in the introduction to *The Mammals of Australia* (1863) says:

"Mr George French Angas having sent me a skin of this animal from South Australia, I am enabled to state that its range extends from Western Australia to that colony." Ride (*pers. comm.*) has been unable to trace that specimen, and the species is not mentioned by Wood Jones (1923) in *The Mammals of South Australia*.

(3) Fossil Records.

Lundelius (1957) has added to collectors' information on locality for a number of mammals including *Antechinus apicalis*. He considers the fossil assemblage of the top foot and surface in caves along the west and south coasts of W.A. "to represent the fauna of those areas before the effect of introduced species was felt." He recorded *Antechinus apicalis* "in caves along the west coast from Yanchep to Jurien Bay. It appears to have occupied a strip of country along the coast as far south as Yanchep, then inland to Albany skirting the high rainfall area of the South-West corner. No remains are known from the Margaret River caves."

Lundelius (1960) records *A. apicalis* near Jurien Bay, from Drovers Cave, four miles inland from the bay and 130 miles north of Perth, in deposits to a depth of 5 feet; and from Wedge Cave one mile north-west of Mimegarra homestead, 100 miles north of Perth, to a depth of 8½ feet in the deposits.

* As printed in Whittell's article the word appears as "Dib-bier" not "Dib-bler," an error which has caused press releases of this present rediscovery to have been issued under the name Dibbler, on the assumption that Gould had erred and subsequent works, such as Glauert's (1928) "official" list of popular names, had copied the error. The Director of the Queensland Museum has now confirmed from Gilbert's notebook that the original spelling of the native name is "Dib-bler."

The species was not recorded from the Mammoth or Nannup eaves, both near Witcheliffe in the extreme south-west of Western Australia, nor was it among fossils from six eaves located on the southern edge of the Nullarbor Plain (Lundelius, 1963).

PREVIOUS RECORDS OF BEHAVIOUR AND ECOLOGY

There are very few records of the behaviour and ecology of *Antechinus apicalis*, so those known are quoted in full.

(1) From Gilbert's Notebook (Whitell, 1954).

"This species is universally dispersed over the whole of Western Australia; it is easily distinguished from all others of the Genus by the long hairs on the sides of the basal portion of the tail giving the tail a pointed appearance. It appears to vary a good deal in habits in different localities. At Moore's River the natives describe it as making a nest beneath the overhanging grasses of Xanthorrhoea. While at Perth its nest is taken either from the dead stump or from among the upper grasses of the same plant, while at the Sound the natives constantly pointed out a nest of short pieces of sticks and grasses on the ground very much resembling the common *Perameles* excepting that there was in general a larger and higher heap than is generally brought together by the latter. On examining the stomach it was found to contain insects generally, but more particularly small Coleoptera. While at the Sound I obtained a female with seven young attached in the same manner as observed in *A. leucogaster*. These young were little more than half an inch in length, the hinder parts remarkably small, as compared with the anterior extremities. The young are very tenacious of life in the above instance the young lived attached to the dead mother for nearly two days before they were removed when they were rather forcibly detached, I put them in spirits, and it was nearly two hours after immersion before they ceased moving.

Hab: Western Australia. No. 2 of my collection."

(2) From Gilbert's letter to Gould from Perth, March 27, 1843 (in Wagstaffe and Rutherford, 1955).

"It was brought to me by a native, who said he had captured it in a nest formed in a slight hollow in the ground, and under the shelter of a Xanthorrhoea. My specimen is a female; its mammae were four in number, and bore the appearance of having had as many young ones attached which were probably torn off by the Native in catching it. J. Drummond informs me that the Male is much larger. He has a specimen which he has promised me."

OBSERVATIONS ON THE ECOLOGY AND BEHAVIOUR OF *ANTECHINUS APICALIS*

(1) In the wild.

The capture of two specimens of this species, both on banksia flowers, suggests some dependence upon the larger wildflowers so common on these coastal sandplains, for nectar and for insects. (Night examination of these banksia flowers revealed copious nectar, and insect life far more abundant than by day: great numbers of minute insects, and eriekets, spiders, several olive-green centipedes, and on one flower, a sleeping emu-wren, *Stipiturus malachurus*, which was easily caught in the hand.)

It seems that the banksias not only provide water as nectar (for which they are visited also by the Honey Possum and *Rattus fuscipes*) but also attract predatory insects, spiders and centipedes which in turn would be an added attraction for any small carnivorous marsupial such as *Antechinus apicalis*.

Conversely it is suggested that the very small insects that are present in great numbers within the tangled mass of banksia flowers, well below the sites of pollen transfer, could but rarely pollinate these flowers, but serve well as an added attraction for the honeyeating birds and for the small marsupials whose probing of the flowers must be equally effective in pollination.

The site of capture suggests *Antechinus apicalis* is partly arboreal. Observation of behaviour in captivity supports this.

(2) In captivity.

To the time of writing, the two specimens of *Antechinus apicalis* have been kept in captivity for six weeks on a diet of various insects (predominantly grasshoppers) and spiders and raw meat. Milk and water were taken, both seeming more acceptable if honey was added. Fresh banksia flowers placed in the cage are probed and licked with great enthusiasm.

This *Antechinus* can climb quickly and surely, and is fast along branches and among foliage, and commonly springs from branch to branch, a foot or more. Occasionally, if suddenly disturbed, it will release its grip and drop three feet from the top of its cage, landing with a thud but immediately pushing beneath loose leaf litter. When both rush around the cage in the evening or in the early hours of the morning these jumps and drops from heights are common, almost constant, at the peak of their activity.

A. apicalis grasps slender branches or twigs by separating the thumb and first digit from the other three and holding the stem between them. On larger stems or trunks such as *Banksia* the animals appear to gain sufficient traction through their claws and foot surfaces.

The tail serves as a balance and prop when climbing vertically or clinging to the rough-textured surface of a banksia flower. The long, stiff, rather harsh fur of the base of the tail is pressed hard against the flower, particularly when the Dibbler has caught an insect and, as is customary, holds it in its hands to eat. Often as the animals descend they curve the tail laterally to press it against twigs and stiff leaves, and this seems to stabilise their swift descents.

Fresh flowers of *Banksia* placed in their cage are immediately investigated: the Dibblers probe and lick among the rows of



Fig. 2.—The Dibbler feeding in captivity. Insects are held in the paws to be eaten; spiders, however, are buffeted and disabled first.

—Photo M. K. and I. M. Morcombe

massed flowers, giving the impression that they are very familiar with these flowers and their nectar or insect contents.

Insects when offered are grabbed in the forepaws and held while eaten, the first quick bites being always directed at the head. Large spiders and other potentially dangerous prey are not immediately grasped, but are dealt several quick, buffeting blows before being snatched up and given a quick bite, to be dropped, snatched up again, given another quick bite or two, dropped again, and then eaten or further disabled. The whole action would occupy perhaps one second.

In captivity this marsupial is not entirely nocturnal. It is most active early in the morning, but the leaps and the running slow down as the sunlight's warmth and glare increases, until by ten or eleven both Dibblers have pushed beneath the loose leaves thick on the floor of the cage, where they sleep until near sunset. Again they are very active until nine or ten p.m., then seem to sleep much of the night (becoming active if lights are turned on for a while) but are always dashing around their cage by 5 a.m. as the sky lightens with approaching dawn.

On one occasion the male was seen sunning himself when sunlight reached into one corner of the cage. This habit may be more frequent in winter or in the much cooler summer days of the south coast.

A. apicalis in captivity seeks shelter and moves about under loose leaf litter where it lies thickest on the ground; in bright light the animals will not climb, but they will move around on top of the litter, the slightest disturbance sends them beneath the litter in which they burrow by forcing themselves through with considerable violence to emerge at some other point. By continuous use of the one hiding place, something of a chamber is formed among the mass of leaves and fine twigs; paper tissues have also been shredded and incorporated into the walls and the entrance remains open. It is probable that the activity concentrated in a nesting area would also result in a slight hollow in loose soil, probably by continued usage and burrowing under the mass of litter. Such a hiding place would well fit the description of a nest given in Gilbert's letter to Gould.

A NEW DESCRIPTION, LIVING SPECIMENS

The most striking feature of *A. apicalis* is the clear white ring around each eye. This eye ring of near-white fur is very conspicuous. Under conditions of subdued (shade) lighting (as in a room lit by window light) it is still visible from at least fifteen feet if the animal is not moving quickly.

Distinctive also is the tail, which tapers sharply but uniformly in its $3\frac{1}{2}$ inch length from a width of $\frac{1}{4}$ inch at the base to quite a fine point. This strong taper is not only due to the longer fur towards the base but also to a considerable taper of the underlying tissues.

The speckled colour of the fur is obvious. Each hair is tipped white. These hairs are of a medium, neutral grey for the 4 to 5 mm. nearest the body; distinctly reddish for the next 4 to 5 mm., and tipped pure white for the outermost 3 mm. These white tips stand out against the underlying dark red-grey, giving this species its characteristic freckled colouration. I found it possible to distinguish the white flecks without difficulty at six feet in subdued (shade) lighting. At greater distances (or when moving quickly) this marsupial appears more uniformly grey to grey-brown; in direct sunlight it appears light grey from a distance.

The speckled colouration of *Antechinus apicalis* extends from the vicinity of the eyes to the tail tip, where it is almost lost in

the general darkening of the last inch of tail. The undersurface is grey-buff, without the speckled effect.

Also conspicuous and distinctive are the reddish forearms. Ears are rounded, standing out quite prominently when the animal is alert, but otherwise lying more or less level with the general contour of the fur.

CONSERVATION

It is probable that further trapping with suitable cages would reveal *Antechinus apicalis* in similar habitat at other localities along the south coast. Mt. Many Peaks, only a few miles to the west, sheltered on its seaward side, would be important to investigate. It seems at present to be useless for agriculture, comparatively difficult of access and is already known to be quite rich in other fauna, as well as the indigenous flora, well worth conservation. If adequate populations of *A. apicalis* are present, it could be a satisfactory reserve for the species.

Dr. G. M. Storr, writing of the 1959 survey of this region by the party from the Zoology Department, reports very favourably on this region - "the Waychinicup valley constitutes one of the best mammal habitats in south-western Australia . . ."

The only known population of *Antechinus apicalis* (i.e. that where the species was rediscovered) is precariously situated close to the huts of a fishing settlement. Here the small patch of scrub known to be Dibbler's type of habitat on this coast, is crossed by fishing tracks, is near a farm, and late in 1966 narrowly escaped burning when fires spread from the vicinity of the settlement burning out some thousands of acres of the low coastal hills.

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SUMMARY

(1) *Antechinus apicalis* was rediscovered in January, 1967, 98 years since the last definitely located specimen was taken, and some 83 years since the last unlocalised specimen.

(2) Two specimens were taken alive on banksia flowers at night.

(3) The species climbs naturally and well and is certainly to some extent arboreal; it burrows in and moves freely under litter on the ground.

(4) The only known population is in a precarious situation due to the probability of habitat destruction by fires from the fishing settlement at Cheyne Beach; accordingly, everything possible should be done to discover populations elsewhere and a suitable reserve set aside for the species.

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